

Spiritual Conceptions and Perceptions of Medical Students and Other Health Sciences Students Regarding Learning of Human Anatomy with Donated or Deceased Human Bodies: A Scoping Review

Concepciones y Percepciones Espirituales de Estudiantes de Medicina y Otros Estudiantes de Ciencias de la Salud con Respecto al Aprendizaje de la Anatomía Humana a Partir de Cuerpos Humanos Donados o Fallecidos: Una Revisión Exploratoria

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SUMMARY: Learning human anatomy through interaction with donated or deceased human bodies and anatomical specimens impacts students' beliefs about the body after death and the ritual and spiritual significance of the whole body. It provides spiritual, moral, religious, ethical, emotional, physical, and social experiences, from which their impressions and actions arise, leading them to develop positive or negative attitudes. Therefore, the objective of this review was to present available information on the spiritual conceptions and perceptions of medical and other health science students when learning human anatomy with these bodies. Methodologically, a scoping review was conducted following the Joanna Briggs Institute guidelines to ensure consistency and reliability. A search and identification strategy was applied in four databases, in English and Spanish, using MeSH terms and Boolean connectors. Qualitative and mixed-methods studies published between 2012 and 2023 were included if they met the eligibility criteria, while studies that did not align with the PCC elements of the research question were excluded. From 181 initial records, 19 studies were selected. Data extraction and characterization was performed using a JBI template, followed by a descriptive analysis that identified two representative emerging themes: the first on students' spiritual conceptions and the second of spiritual perceptions about anatomy learning experiences with those bodies. These findings highlight the need for future qualitative research and other approaches to deepen the understanding of the results of this review.

KEY WORDS: Spiritual perceptions; Human anatomy; Education; Religion; Medical students; Health sciences students; Scoping review.

INTRODUCTION

In the practice of learning human anatomy, the oldest and still most relevant method is dissection, carried out in the real-life context of laboratories. This method enables tangible interaction with donated or deceased human bodies and human specimens, serving as the primary setting in which students confront the reality of life and death and reflect on their responsibility to care for human beings, while pursuing an understanding of the macroscopic structures of the human body. However, in many countries today, the acquisition of these bodies for educational purposes is limited (Bernal-García *et al.*, 2022).

The evolution of anatomical practice over more than six centuries, from the first dissections to current body donation programs, has become a significant field of research regarding the sources of human bodies for educational purposes. Data collected from 71 countries show the presence of body donation programs in most of Europe and North America, as well as in Australia, New Zealand, and parts of Asia and South America. In Western cultures, the growing prevalence of cremation and the associated willingness to donate one's body can be interpreted as an acceptance of dissection as another form of post-mortem "destruction." In

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addition, religious diversity, popular beliefs, cultural traditions, historical factors, and moral and ethical viewpoints shape people's perceptions of what happens to the body after death and of the ritual and spiritual significance of the whole body (Habicht *et al.*, 2018). These factors influence the evolution of anatomical practice and create dilemmas regarding the use of this valuable resource in medical education. Today, medical schools in the United States incorporate ethical guidelines for human body donation and integrate ethical education into anatomical dissection, allowing students to develop their own ethical perspectives through these practices (Nawras *et al.*, 2023).

In students' comprehensive understanding, the use of donated or deceased human bodies as a resource in the learning process has elicited a range of emotional, spiritual, moral, religious, ethical, physical, mental, social, and coping experiences. These perceptions and attitudes, both positive and negative, have been primarily documented in medical education; however, some studies have also emerged in other health sciences such as Dentistry, Nursing, and Physiotherapy. Through these experiences, students may perceive the donated body either as a specimen for learning or as a person. The concepts of "humanization" and "dehumanization" of human bodies in the anatomy lab have also been considered. Ultimately, these experiences connect macroscopic anatomy with professional development, though in different ways (Goss *et al.*, 2019; Bergen *et al.*, 2024). The classic preclinical dissection courses fosters professionalism competencies through experiential learning and continuous reflection during students' training (Shiozawa *et al.*, 2020).

From a spiritual perspective, the impact on students' learning in human macroscopic anatomy reveals conceptions and perceptions documented in various studies, primarily qualitative in nature, in specific contexts that highlight diverse facets and point to the need for knowledge that is more human-centered and meaningful. Therefore, this exploratory review aims to present available information on the spiritual conceptions and perceptions of medical students and other health science students when learning human anatomy using donated or deceased human bodies. To address this topic, the term "cadaver" is not used in the text itself, as it objectifies the body; however, it appears verbatim in the quoted narratives of participating students to preserve the originality of the published accounts from the 19 studies included in this review.

METHOD

The Joanna Briggs Institute's guidance for scoping reviews (JBI-SR) was followed. A protocol was developed

to define the objectives, methods, plan, and reporting of the review, ensuring transparency and minimizing the risk of reporting bias (Peters *et al.*, 2020).

1. Inclusion criteria: This section is divided into four subsections:

This scoping review incorporated evidence from available studies to answer the following question: *What are the spiritual conceptions and perceptions of medical students and other health sciences students in learning human anatomy with donated or deceased human bodies?* The PCC distribution elements were defined as follows:

P (Population): Medical and Health Sciences students

C (Concept): Spiritual conceptions and perceptions

C (Context): Learning anatomy with donated or deceased human bodies, primarily in laboratories or dissection rooms, and in other related settings. This also included strategies used by institutions where macroscopic human anatomy is taught, which may involve plastinated or processed human specimens.

b. Definitions of conceptions and perceptions: For interpretative purposes, this review adopts the concept of "**conceptions**" as the "set of ideas one has about something, like an opinion, or the formation of a thing or idea in the imagination or thought". And the concept of "**perceptions**" as an essential part of consciousness that constitutes reality as experienced, given the processing of information from stimuli to receptors according to the subject's own activity (Carterette & Friedman, 1982). It also encompasses the notion that a person's perception of another person or phenomenon "*depends on the recognition of emotions, based on people's reactions; impressions are also formed, based on the union of various informative elements collected in the early moments of interaction.*" Moreover, perceptions are influenced "*by causal attributions, or the search for some cause that explains behavior and events. In any case, feelings, thoughts, and behaviors regarding people will be mediated by the type of cause attributed to their behavior*" (Moya, 1999).

c. Types of participants: As defined in the PCC, this review included studies conducted with medical and health sciences students on the topic of interest.

d. Types of sources: Original qualitative and mixed-method studies from all approaches were included. These utilized any qualitative data collection method (e.g., interviews, focus groups, action observation, among others) and were published between 2012 and 2023.

2. Search strategy

The search and selection of studies in both English and Spanish were conducted in three steps, following the scoping review methodology, by two reviewers (MBG and MQM) between May and August 2023. In **step one**, an initial pilot search was carried out in the PubMed and Scopus databases. Then, in **step two**, the search was extended to the Ovid and Web of Science databases. In both steps, combinations of keywords and MeSH/DeCS terms were adapted to the characteristics of each database. The search strategy included terms such as *conceptions, perceptions, religion, spirituality perceptions, corpse, donor conception, gross anatomy education, medical students, health sciences students, qualitative study, and qualitative research*. Logical operators (AND/OR) were applied to construct various search equations. For example:

Ovid: (Perceptions and Spirituality and Corpse and Human anatomy and Qualitative study).mp. [mp=title, abstract, full text, caption text]

PubMed: (((Perceptions) AND (Spirituality)) AND (Human anatomy)) AND (Health Sciences Students)

Subsequently, in **step three**, a manual search (snowball sampling) was performed using the reference lists of articles identified in steps one and two. Articles that met the inclusion criteria were selected, and discrepancies between the two reviewers were resolved by consensus. Priority was given to internal validity (rather than numerical analysis) to ensure confidence in the applicability of the results and to strengthen the extraction of relevant knowledge.

3. Data extraction

For data extraction (steps 1, 2, and 3), the two reviewers (MBG and MQM) used the Joanna Briggs Institute template (JBI-Appendix 11.1) for study characterization, which served as an instrument for recording evidence details, study characteristics, and extracted results (Peters *et al.*, 2020). In addition to basic identification data, qualitative findings relevant to the PCC question were extracted.

The included studies met the previously established source criteria (see subsection d of the inclusion criteria). They comprised qualitative or mixed-method designs, using diverse data collection approaches such as interviews, focus groups, and action observation, and were published between 2012 and 2023. Importantly, only inductive qualitative findings were extracted, as these demonstrate how participants conceptualize and give meaning to the studied

phenomenon, allowing for appropriate analysis through inductive reasoning.

Consequently, only primary studies were included, since the originality of students' narratives generates authentic inductive data that contribute substantially to knowledge construction. Grey literature and secondary sources were excluded because, although often presented as reliable, they do not adhere to the traditional editorial standards of scientific journals and books, and thus did not meet the criteria for inclusion in this review.

4. Analysis and Presentation of Data

A descriptive-narrative analysis was conducted within a qualitative thematic framework, identifying emerging themes from the narratives of participating students in each included study. Key findings were synthesized to explain the phenomenon under review as a collective representation derived from the selected studies.

The selection process of evidence sources was documented using the PRISMA-ScR flowchart, following the checklist and reporting standards proposed by Tricco *et al.* (2018). The flowchart reports: (a) the total number of initial studies retrieved through search terms and filters in each database; (b) the number of references that met the inclusion and exclusion criteria after title and abstract screening; and (c) the number of studies that advanced to full-text review.

RESULTS

Selection of Evidence Sources

The process of search, identification, and study selection is illustrated in the PRISMA-ScR flow diagram (Fig. 1). A total of 181 articles were identified: 166 through database searches and 15 through manual searches. After screening titles and abstracts, 60 articles remained. Of these, 4 could not be retrieved in full text and were excluded. From the remaining 56 articles, 36 were excluded during full-text review due to non-compliance with the selection criteria (e.g., inappropriate designs or topics). Ultimately, 19 studies were included in this scoping review.

Characterization of Included studies for the Scoping Review

The 19 studies included in this review originate from nine countries, with the most represented being New Zealand (n = 4), the United States (n = 4), Taiwan (n = 3), and South Africa (n = 2), among others. These studies were published

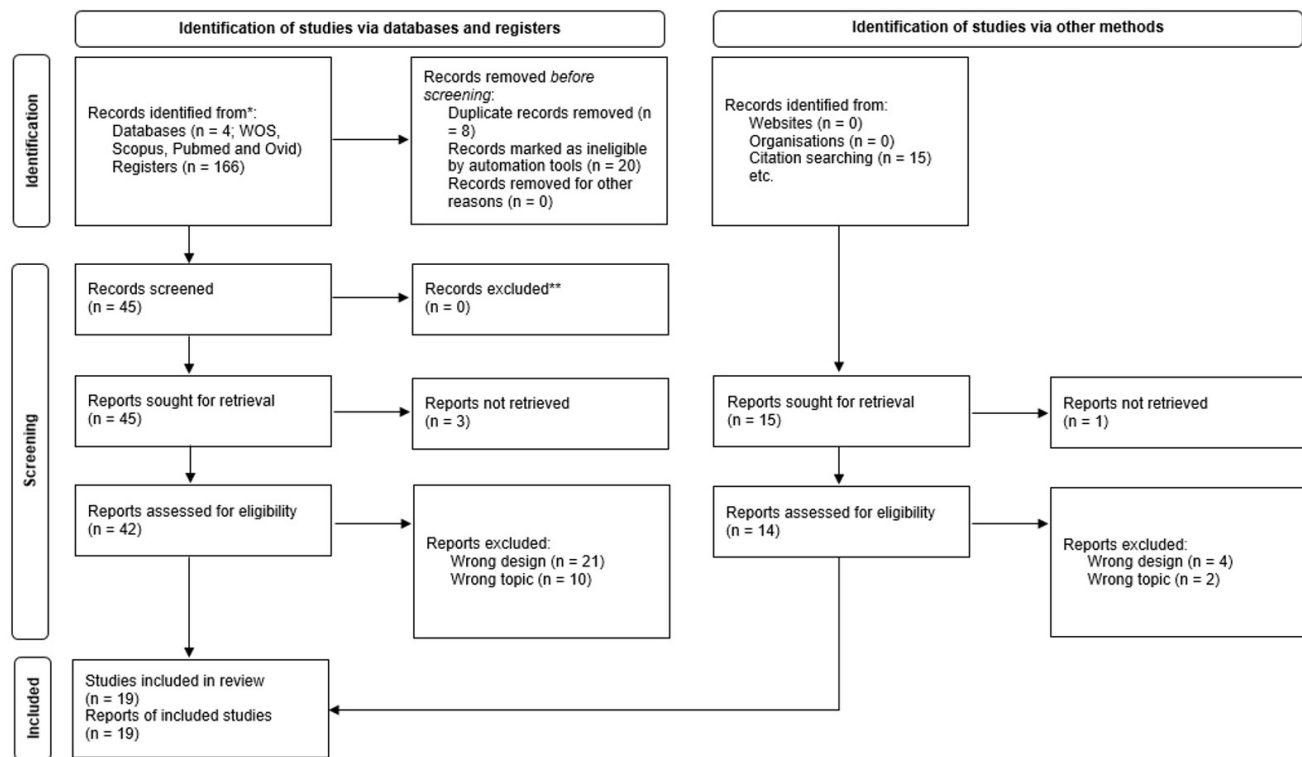


Fig. 1. PRISMA-ScR Flow Diagram.

between 2012 and 2022. The sources of evidence encompass qualitative and mixed-methods designs with diverse research approaches, collectively involving a total sample of 2,486 students from Medicine and Health Sciences (including Dentistry, Nursing, and Physiotherapy).

Participants engaged in various qualitative data collection techniques such as interviews, focus groups, and reflective writing, as implemented by the researchers of each included study. The synthesis of these findings is presented in Table I.

Grouping of themes based on qualitative findings

From the textual narratives provided by participating students in the included studies, the findings were grouped into two main representative themes, which further break down into specific topics.

1. Spiritual conceptions of students

These conceptions hold broad relevance among Health Sciences students. However, they remain an important yet conceptually distinct component, making their precise content difficult to define. Spirituality may be approached as the unyielding and ubiquitous space in which each person must confront their own meaning; the beliefs and other truths

exclusive to individuals themselves. Moreover, what is spoken by a particular person, if shared with others, can build collective identity, thereby providing something useful that spirituality can contribute (Martin & George, 2016).

In the medical literature, various definitions of spirituality are addressed from multiple dimensions. One of these states: "Spirituality is the dynamic dimension of human life that relates to the way persons (individual and community) experience, express, and/or seek meaning, purpose, and transcendence, and the way they connect to the moment, to self, to others, to nature, to the significant and/or the sacred" (Puchalski *et al.*, 2014). In this sense, anatomy students can generate their own conceptions.

The main components that converge in this theme are described below, derived from the experiential perspectives of the students who participated in the various studies included in this review.

1.1. Death:

It is common that, in the learning of anatomy with donated or deceased human bodies, students in the Health Sciences develop different spiritual conceptions and perceptions about death. These perceptions are rooted in their prior beliefs and experiences and often arise as a reaction to

Table I. Characterization of included studies.

Study Number	Author, year and country	Study type and focus	Aim	Study population	Main qualitative thematic findings
Study 1 (S1)	Chu <i>et al.</i> , 2022. Taiwan	Qualitative interpretive paradigm	Explores the influence of the program on students' humanistic literacy based on student letters to silent mentors, which students wrote near the end of the program and laid by the silent mentor during the coffin ceremony.	Total, 125 medical students	My silent mentor Connection to silent mentor and family Reflection and transformation
Tabla Ia	Hartmann <i>et al.</i> , 2022. South Africa	Mixed	Explored the students' emotional response to and factors affecting their perceptions of the use of human remains for learning anatomy in a South African context.	Total, n=480 Health science students (F=359; M=120)	Beliefs and Experiences of Death Gratitude and Respect for the Body Donors Educational Value
Study 3 (S3)	Mueller & Allison, 2022. EEUU	Mixed	To determine whether knowledge of donor information is associated with greater humanization of donors and to investigate student perceptions of receiving donor information.	Total, n=39 dental students	Donor consented to donation Donor donated to help students learn. Students have respect for the donor Learning experience Donor is not an alive patient to treat. Students connect donor to living patients
Study 4 (S4)	Yoo <i>et al.</i> , 2021. Southern Korea	Qualitative	Examines the changes in metaphors used by medical students before and after the dissection of a cadaver.	Total, 147 medical students (F=52; M=95)	Cadaver dissection is a rite of passage; is the first step to becoming a doctor; is a precious opportunity; is a fog; is hell; is a thrill; is a double-edged sword; is introspection; is a treasure Hunt; is a precious opportunity; is hell; is a debt; is a turning point; is a fog; is a buzzer beater.
Study 5 (S5)	Abrams <i>et al.</i> , 2020. EEUU	Qualitative-Grounded Theory	To identify themes that emerged as students reflected on the impact of their dissection experience using reflective writing as a tool to capture these themes and to gather information to inform pedagogical methodologies.	Total, 117 medical students	Gratitude; Patient's Story; Learning Anatomy; Diagnosis; Humanism and Compassion; Reflection; Career Development as a Physician; Lifestyle and Prevention; Empathy; Mortality
Study 6 (S6)	Kassam <i>et al.</i> , 2020. United Kingdom	Qualitative-Foucauldian discourse analysis methodology	Analyses a corpus of 119 tributes written by three consecutive cohorts of first-year medical students at a university to their cadaveric donors.	119 medical students	Knowing a person and dissecting an organism; Responses to the epistemological gap; Characteristics ethical knowledge
Study 7 (S7)	Goss <i>et al.</i> , 2019). EEUU	Systematic qualitative analysis	Study explored how students viewed the body donor and the professional lessons they learned through dissection at one such medical school.	Total, medical students (n=33) (F=21; M=12)	Two Ways of Seeing; Emotional Experience; Moral Experience; Professional Development; Respect Emotional Norms
Study 8 (S8)	Stephens <i>et al.</i> , 2019. Australia	Cross-sectional and longitudinal qualitative study	Identify any areas of interplay between anatomy and medical ethics curricula to ultimately inform development of an evidence-based integrated anatomy and bioethics curriculum. The following exploratory research question was addressed: What are the impacts (if any) of donor dissection on students' perceptions of medical ethics?	Total, 207 medical students 117-Cohort A and 90 from Cohort B.	Dignity (Dignity as respect, Dignity through privacy, Rudeness violates dignity; Beneficence; Consent, Bodily integrity, Dignity through personification, Dignity and spirituality); Beneficence (to education, to science, to society) Consent (Autonomy of the donor, Informed consent, Coercion of the donor, Capacity of the donor to consent)
Study 9 (S9)	Lai <i>et al.</i> , 2019. Taiwan	Qualitative	Understand the students' perceptions of integrating a silent mentor program into the anatomy course	Total, 25 nursing students.	Transforming Fear into Great; Respect; Emotional Connection with Silent Mentors; Empathy with Silent Mentors' Suffering; Compassion for Decision of the Silent Mentor's Family; Attitude and Emotional Engagement with the Class Participation and Interaction in Class Self-Expectation of Being a Better Student or Nurse; Thinking about Death in a New Way
Study 10 (S10)	Liauw <i>et al.</i> , 2018). Canada	Descriptive qualitative	Explore how host medical students learn from visiting foreign students, by reporting on a global health program that has invited two or three Haitian medical students each year since 2013 to a Canadian medical school for a summer anatomy program.	Total, 10 Anatomy, Medicine students (F=4; M=6)	Nature of the relationship between students (Reflection on practices and privilege; Negotiation of power dynamics; Perception of Haitian students as agents; Common learning objectives); Elements that facilitated transformation and growth (Working in groups, Informal social gatherings)

Study 11 (S11)	Flack & Nicholson, 2018. New Zealand	Mixed	Identify what undergraduate medical students learn, how they cope, and what effects participating in dissection has on them as individuals.	F: second year=109, Third year= 65 M: second year= 82, Third year= 42 NA second year=4 Third year= 2	Need to participate in dissection Perception and learning of dissection Effects of dissection as individuals
Study 12 (S12)	Chang <i>et al.</i> , 2018. South Korea	Qualitative	To investigate students' emotions towards cadaver dissection and the educational role of memorial ceremonies.	Total, 37 medical students	Emotional experiences during cadaver dissection Educational impact of memorial ceremonies
Study 13 (S13)	Lazarus <i>et al.</i> , 2017. South Africa	Mixed - narrative interpretations with a grounded theory approach	To record student attitudes to human cadaveric dissection, explore their experiences of anatomy through an analysis of their journal-reflective.	Second year of Medicine (n = 197), Physiotherapy (n = 40) and Medical Sciences (n = 27) and first year of Occupational Therapy (n = 34).	Dissecting room stressors; Educational value of dissection; Appreciation, gratitude, respect and curiosity for the cadaver; Sentiments expressed in dissecting room: Positive emotion, Negative emotion; Organized learning and camaraderie; Spirituality/religious beliefs; Shared humanity and emotional bonds; Acknowledgment of human anatomical variations; Beauty and complexity of the human body; Psychological detachment
Study 14 (S14)	Tseng & Lin, 2016. Taiwan	Qualitative	To ascertain student attitudes —characterized as detached concern—in cadaver dissection courses.	Total, 12 medical students	Initial Emotional Impact; Human Referents; Coping Strategies; Ways of Perceiving Cadavers
Study 15 (S15)	Santibáñez <i>et al.</i> , 2016 Malaysia	Qualitative	Summarize the Silent Mentor Program; Describe findings from an assessment of medical students who recently completed a new version of the program in Malaysia; and explore how healthcare settings could benefit from this innovative program.	Total, 229 medical students	Initial Skepticism; A Transformative Process; Altruism; Competence; Wholistic Medicine; Empathy; Balance; Grief; Promise
Study 16 (S16)	Talarico Jr, 2013. EE UU	Qualitative	Discusses this novel paradigm, which has created an interdisciplinary learning environment focused on the "donor as patient, teacher, and human being."	Does not report	The First Patient; Knowledge; Reflection and Reflective Practice; Treating the Total Patient; Professionalism
Study 17 (S17)	Martyn <i>et al.</i> , 2013. New Zealand	Qualitative	Explores students' understanding of the concept of a soul.	Total, 267 medical students	The students' definitions of the concept of a soul; The Soul and the Body; The soul and Immortality; Religion and the Soul; Questioning the Soul
Study 18 (S18)	Lamdin <i>et al.</i> , 2012. New Zealand	Qualitative	Explored medical students' experiences of attending an orientation to human dissection and the anatomy laboratory.	Total, medical students (n=21) (F=14; M=7)	Student Anticipation; Psychological Approach to the Body; Normalizing or Continuing Disquiet; Social Reference
Study 19 (S19)	Martyn <i>et al.</i> , 2012. New Zealand	Qualitative	Assess the attitudes of medical students towards the heart and brain during their anatomy laboratory dissections to evaluate if any extra meaning is given to these organs and where they perceived the origin of the soul.	Total, 16 medical students	Students' Comments When Asked to Summarize the Brain in One Sentence; Students' Views of the Heart—Is It More Than a Muscle?

the direct manipulation of these bodies. In this context, students generate existential reflections that lead them to contemplate the fragility of life, the value of present vitality, and the reality of death as an inevitable part of the life process for themselves and their loved ones. These reflections also strengthen or deepen their connection to religious beliefs, such as:

S9: "I hardly thought about death before. But now I am even more afraid of it because during the opening ceremony I saw several families of the silent mentors crying. I felt so sad. And I was thinking: what if I died? For those people who love me, it would be very sorrowful. I could not let my parents feel sad because of me. It really changed the way I think about death" (Lai *et al.*, 2019).

S5: "realize that my time is limited", "myself and my loved ones will have to face death", and "we all must eventually navigate our way through death" (Abrams *et al.*, 2021).

S11: "Coming face to face with death every week has helped me see it as part of life." (Flack & Nicholson, 2018).

S2: "To be physically interacting with the element of death leads one to consider many other facets of one's life." (Hartmann *et al.*, 2022).

S12: "The cadaver somehow reminded me of my grandmother who had passed away when I was a small child. As we were really close, I was deeply sorrowful and afraid of the fact that anyone could die. At the funeral, I saw her body in a coffin. I still remember that sight and even the smell of the room. Those memories resurfaced when I saw the cadaver for the first time, making me afraid that death was always beside me" (Chang *et al.*, 2018).

S18: "But I think one thing—it sorts of deepened my faith in God" (Lamdin *et al.*, 2012).

Another type of spiritual reflection among these students centers on how the death of donors transitions from being conceived as an end in itself to being perceived as a demonstration that dying can extend the value and usefulness of life. These donated or deceased human bodies are understood as serving a higher purpose—namely, supporting the learning of anatomy, which underpins

education in the Health Sciences and carries social value for the well-being of humanity:

S9: "The silent mentors have put their useless bodies to great use, which made me think that death is not an end but rather an extension of a limited life and a great love". (Lai, 2019).

S1: "...I thought about donating clothes, furniture, blood, and organs; donating my body, however, had never come to my mind. To me, my teacher showed great altruism and determination to put his body to great use after death. His courage, spirit of giving, and wisdom in extending life's value will remain forever in my heart" (Chu *et al.*, 2022).

These spiritual reflections on life and death foster critical and profound thinking that extends beyond how students of Medicine and other Health Sciences perceive their own humanity and the humanity of those close to them. This enables them to attribute high value not only in academic terms but also in humanistic terms to the use of cadavers in the learning of anatomy.

1.2. The deceased body as the conception of "cadaver" for students and human specimens in the laboratory

After death, the human body undergoes intrinsic and extrinsic processes that lead to decomposition until it becomes a "cadaver." Thus, in macroscopic anatomy laboratories—through interaction with donated or deceased human bodies and human specimen materials, together with the experience of dissection—students form particular judgments shaped by their sensory and emotional experiences. These judgments are expressed in various ways, some of which are recounted verbally, such as:

S14: "I remember that I felt shocked at the first sight of him [the cadaver] I think maybe this was because I saw it floating in the [storage] pool, and the scene caused a frightful association in my mind between water and the corpse." (Tseng & Lin, 2016).

S14: "I found it difficult to separate my sensibilities and my rationality when working on the cadaver; therefore, I didn't exactly know the right way to view the cadaver. I mentioned that the course brought up a conflict within me. If I were to consult my feelings, I would consider the cadaver as a person. Even though he was dead, he was still a person. But rationally, I know that if I hold on to that perspective, I won't be able to perform the tasks I need to, like cutting or dissecting, smoothly...I think maybe it was a kind of self-protection mechanism—if I perceived the course too emotionally, I would be unable to learn effectively, that is, I would be unable to learn well in a team." (Tseng & Lin, 2016).

S14: "I think it was a special experience to 'take the brain out.' The process of taking out the brain evoked a... special

feeling for me. Maybe it is because the brain is an important organ where many things are stored, such as his [the cadaver's] memory, personality traits in his previous life. So, to take it out is much 'heavier.'" (Tseng & Lin, 2016).

Students also experience emotions that lead to ambiguous coping mechanisms, some of which are insignificant, while others create uncertainty.

S11: "I was surprised how little the cadaver affected me." (Flack & Nicholson, 2018).

S11: "Distancing yourself from facts like 'this was a person' is a little too easy. Still trying to figure out if that makes me a bad person or not." (Flack & Nicholson, 2018).

Therefore, the "cadaver" is perceived within the laboratory context and according to its state of preservation. Through their experiences, students create boundaries of representation between the human and the non-human, often grappling with sensations, emotions, and even worldviews that are difficult to articulate and may at times generate inner conflict. Nevertheless, many students attempt to verbalize, write about, and reflect on these experiences, seeking to attribute meanings and interpretations that leave an indelible mark on their learning practices.

1.3. The Donor

The use of donor bodies for the teaching and learning of human anatomy generates numerous reflections among students, not only about the donation process itself but also about dying and death. This experience fosters humanistic values through commemorative ceremonies and rituals held at the beginning or end of the course, as well as through the practical dissection activities carried out with donor bodies. Direct contact with donors' families also provides important experiential learning opportunities. Several narratives related to this category were identified in the review.

Some of them express gratitude toward the donors' bodies:

S1: "To me, my teacher showed great altruism and determination to put his body to great use after death. His courage, spirit of giving, and wisdom in extending life's value will remain forever in my heart." (Chu *et al.*, 2022).

S1: "I'm extremely thankful that my silent mentor's final wish was to let doctors or trainees make hundreds or thousands of cuts on his body rather than doing anything wrong on patients." (Chu *et al.*, 2022).

Others reflect the sense of responsibility that students feel when interacting with donors' families:

S1: "I recalled during the beginning ceremony, my silent mentor's big brother held both my hands and asked that I work hard to learn; this body language represented the sincerest wish and unyielding trust ... touching me deep in my heart."(Chu *et al.*, 2022).

S1: "I told myself that I should try my best not to fail the humble wishes brought along with this selfless offering."(Chu *et al.*, 2022).

S16: "In truth, it is very difficult to meet the family of someone that has chosen to become your first patient, not because we don't appreciate their gift, but because there is no hiding the fact that we are dissecting their loved ones with very inept hands. However, I found that that feeling of unease and almost embarrassment was eased the more I learned about my donor, rather than keeping my distance. And so I learned that rather than staying "objective" by maintaining my distance, I was able to take on a greater meaning and interest in my patient by learning who she was emotionally and spiritually, rather than simply physically." (Talarico Jr., 2013).

Moreover, during these ceremonies, students also internalize and associate various emotions and values with the donor bodies:

S1: "I recalled when I lifted up the white linen in the beginning ceremony and saw you for the first time, hot tears welled up in my eyes. I was deeply touched by your selfless offering and my heart filled with respect, but not fear." (Chu *et al.*, 2022).

2. Spiritual perceptions about the learning experiences of anatomy with donated or deceased human bodies

The interaction with donated human bodies or cadaveric material in the learning of macroscopic anatomy leads students to develop experiences of various kinds, shaped by their own spiritual perceptions and reasoning. Through this process, they discover new perspectives that help them understand additional dimensions of learning. It is not only about acquiring tacit knowledge of anatomical content, but also about what direct observation and hands-on anatomical practice provide as a fundamental tool. This enables them to interpret their experiences more deeply, integrating scientific knowledge with spirituality and their own emotions.

In this context, the following findings related to this category are presented:

2.1. Religious and Non-Religious Perspectives

During anatomy learning, close interaction with donated or deceased human bodies often prompts students to question and reflect based on their own conceptions, representations, and perceptions of death, which are grounded in their respective religious or non-religious worldviews. Religious beliefs commonly interpret death as a transition to the eternity of the soul, but they differ in how they assign significance and meaning to the body and in the ways they connect the cadaver to the transcendence of the soul.

The following accounts illustrate perspectives rooted in traditions such as Buddhism, Christianity, and Hinduism. These views often conceptualize the body as a temporary vessel for the soul, which can facilitate the handling of donated or deceased human bodies in educational settings:

S2: "In my religion we believe that you are not the body, you are the soul and once you die your body remains behind as a once-used vessel. This made it easier for me to detach myself from our cadaver and the life she may have lived." (Hartmann *et al.*, 2022).

S18: "Basically, I am more like a Buddhist... So I think... it is just like luggage—the soul comes in..." (Lamdin *et al.*, 2012).

S17: "The soul is like the spiritual side of yourself and is not part of your physical body. I believe that when you die, your soul leaves your body, and I guess that's what contributed greatly to my ease with dissection of the cadavers. The fact that I knew that those people were in a better place and not inside their bodies helped me a lot emotionally."(Martyn *et al.*, 2013).

S5: "Not many of us have the courage or power to understand that the body is a temporary abode for the spirit."(Abrams *et al.*, 2021).

S18: "It was not a whole body in a sense that the spirit had gone."(Lamdin *et al.*, 2012).

In contrast, orthodox religious traditions such as Islam, Judaism, and others restrict contact with and manipulation of human bodies. These religions maintain that after death, the body must be buried without mutilation and that handling should be limited to cleansing rituals. In some cases, the remains are also perceived as potentially contaminating. Such religious beliefs can limit or hinder students' participation and performance in the learning of anatomy.

S13: "In my culture, it is pretty taboo to donate your body to science as it is believed that once you die, you are supposed

to be buried with your forefathers and with all your organs intact and present. If your organs are missing, the elders believe that your soul won't be recognized by your ancestors and in effect your soul will never find peace and will roam freely and cause disruptions because it is restless and searching for their own." (Lazarus *et al.*, 2017).

S2: "We believe a human should be buried after death so the family can be able to visit the grave and they can meet with their ancestors." (Hartmann *et al.*, 2022).

S2: "I feel that they are unclean; they will contaminate me." (Hartmann *et al.*, 2022).

S2: "I believe that a body should be put to rest in order for a soul to be at peace." (Hartmann *et al.*, 2022).

S2: "Mortal remains are sacred in my cultural beliefs." (Hartmann *et al.*, 2022).

S2: "In my religion we are not allowed to touch the body except for those who wash it and dress it up, so sometimes it becomes hard especially when you see other people playing around with certain parts around the lab." (Hartmann *et al.*, 2022).

However, only a few student narratives adopted a non-religious perspective, leaving room for interpretation. This stance may reflect a lack of belief in God or in supernatural beings associated with the soul or spirit (Atheism). One such perspective is reflected in the following comment:

S18: "It was the life that past, rather than the life which was there, because there was nothing there anymore. It was just a shell" (Lamdin *et al.*, 2012).

2.2. Humanistic and Ethical Perspectives

Considering humanism in the anatomy lab when working with donated or deceased human bodies involves aspects such as respect, utility, attentiveness, and thoughtfulness in students' discernment during anatomical study. This is reflected in the expression of emotions such as admiration, inspiration, appreciation, nostalgia, empathy, and others. Accordingly, anatomy practices are perceived as an essential resource in the education of Medicine and Health Sciences. They foster in students a profound respect and gratitude toward the donors of human bodies, both during dissection and in the acknowledgment of whole-body donation. In this context, the dignification of donors is emphasized through the careful handling of their bodies for anatomical study, making a significant contribution to students' learning processes.

S13: "Our first experience in the dissection hall was really emotional. I had mixed emotions as I was partially excited to see a real human body's anatomy first hand, but I was also sad when I saw the cadaver for the first time. I was able to man up and swallow my fears but when I saw our cadaver's hands, she had pink cutex and that humanized me more which brought on the waterworks." (Lazarus *et al.*, 2017).

S19: "I've always seen the heart as sort of just the heart and not the seat of the soul, so it was quite ... inspiring to pull it out and take a look at it but you know, I didn't feel disturbed about it at all, which is sort of interesting." (Martyn *et al.*, 2012).

S7: "One time the cloth covering her hand fell off, and I noticed that her fingernails were painted. And for me something about that completely threw me off. I had to step out. All of a sudden, she was a person again instead of the splenic vein and the portal vein and all that stuff." (Goss *et al.*, 2019).

S2: "I have IMMENSE respect for our body, and treat him in this way, also I make sure all my colleagues are doing the same. He lost his life for us, we owe it to him to be respectful." (Hartmann *et al.*, 2022).

S6: You gave us an appreciation of the humanity of medicine, how thought can and should be given at every stage in life and how understanding can transcend the constraints of biology. You gave us an appreciation of the lengths some will go for perfect strangers beyond that of simple circumstance. As such, you have made us realize something that should be inherent to man: the gift of giving. (Kassam *et al.*, 2020).

In contrast, dehumanization becomes evident as part of the routinization of dissection practice, where the human body is reduced to an object, setting aside the recognition that it once belonged to a person and viewing it solely as a learning resource. These dehumanizing attitudes also function as a mechanism of adaptation: by removing the notion of personhood from the body under study, many ethical questions about what is right or wrong to "do" to a human being are automatically eliminated. This perception rests on the assumption that what is being handled is merely an object of study.

S12: "Under the pressure of examinations, I often forget the fact that I am dealing with a real human body, and conduct the dissection mechanically" (Chang *et al.*, 2018).

S12: "Since my cadaver is a little bit obese woman, sometimes I have difficulties in identifying target vessels or nerves. One day, I was quite irritated because I spent too much time to remove fat tissues. Honestly, I said some bad words insulting her body during the dissection" (Chang *et al.*, 2018).

S14: “To be frank, sometimes the way we dissected a cadaver teacher was cruel. It would be better not to think about it too much. I’m the one who had to dissect the eyes in my group. The moment I opened the eyelid, I suddenly got scared with the realization ‘oh, he is a person!’ [...]” (Tseng & Lin, 2016).

S14: “I don’t allow myself to think too much about the previous life of the cadaver teacher while dissecting it...because I have to concentrate. Thus, I don’t let myself think about anything that could disrupt my ‘hands.’” (Tseng & Lin, 2016).

S11: Distancing yourself from facts like “this was a person” is a little too easy. Still trying to figure out if that makes me a bad person or not. (Flack & Nicholson, 2018).

Within this same theme, ethical reflections also emerge, encompassing questions students raise about autonomy, confidentiality, possible coercion, and the process of informed consent. These reflections involve the donor’s genuine understanding of the use of their body, the role of the family, and ultimately, the reevaluation students undergo regarding the treatment of the human body during its manipulation. This reevaluation is grounded in the respect owed to deceased human beings, recognizing them not merely as bodies but as body donors.

S8: “After seeing the arm specimens in the first anatomy lab, I’m interested as to whether the donors know fully how their body is used in the educational context. Are they fully informed that their limbs could be removed from their body, or is this something that is only assumed and not explicitly stated?” (Stephens *et al.*, 2019).

S8: “... what if there is coercion on the person to donate her/his body so that there would be no cost of [a] funeral...?” (Stephens *et al.*, 2019).

S8 “I suppose donor confidentiality would be similar to patient, as the above comment states, whereby we do not discuss any recognisable, distinguishing or identifying details about the donor, and if we do talk about said donor, all information should be completely de-identified” (Stephens *et al.*, 2019).

S9: I respect the families even more because they have donated their loved ones for our education. The families must have had a very difficult time making this decision. They are truly great people and deserve great respect. (Lai *et al.*, 2019).

S14: “Even though he was dead, he was still a person” (Tseng & Lin, 2016).

S15: “behind every person, living or deceased, is a life story that’s always worth knowing.” (Santibañez *et al.*, 2016).

S3: “reminded [...] that these donors were once full of life and caused [them] to think of the body as a donor rather than a cadaver” (Mueller & Allison, 2022).

Although this review primarily analyzed students’ conceptions and perceptions of learning human anatomy—particularly their interaction with donated human bodies or cadavers and the dissections they carried out—some references also concerned processed anatomical specimens and photographs of body parts or organs. These elements are associated with the humanistic and ethical category, from which students may develop reflections and responses, such as considering the need to detach from the personification of the human material used in the laboratory.

S8: “And in terms of pro-sections, it’s easier to detach yourself because you don’t know how this person died. It’s just like a part of a body, so you can’t really make that human connection with that.” (Stephens *et al.*, 2019).

Other concerns may also arise among students regarding the justification for using donated human bodies or cadavers as material in the study of human anatomy, particularly in light of current trends favoring technological resources.

S8: “I think an ethical consideration is whether anatomy education with cadavers is necessary now that modern technology has made it possible to ‘virtually’ dissect models without having to dissect actual people.” (Stephens *et al.*, 2019).

S8: “The use of cadavers is essential in helping students learn in a more hands-on 3D-way that books or applications can’t teach. No two cadavers are the same, and hence variations in cadavers will also allow students to better understand and learn thoroughly.” (Stephens *et al.*, 2019).

2.3. Emotional perceptions

Medical and Health Sciences students engaged in anatomy practices with donated or deceased human bodies experience these situations individually and differently. They often report ambivalent emotions shaped by their spiritual beliefs and coping strategies, expressing both negative feelings—such as disgust, sadness, or pain—and positive ones, including empathy, compassion, and a sense of connection with the human bodies.

The direct manipulation of these bodies can have a negative emotional impact on some students, particularly when viewing or touching certain anatomical structures. This impact is intensified when the body parts evoke strong associations with personal identity, such as the face, hands, eyes, lips, heart, or brain. Another powerful factor is the

recognition of the humanity of the dissected body, as students may imagine that each body once had its own history and family. In such cases, the most frequently observed emotional reactions include anxiety, sadness, crying, and aversion to physical contact:

S7: "I feel repulsed by the idea that you have all these tubes, and the arch in the aorta, the three things that come off of it. Like, you could stick your finger in them and it's just ? it's uncomfortable that I am like that. I wish that I were looking at something that I didn't share. It's this idea of shared fragility, and insignificance." (Goss *et al.*, 2019).

S11: "I still find it really interesting and sometimes feel sad or anxious about certain parts of dissection e.g., when we dissected the face and neck. But I feel much more able to focus on the process and learning rather than on the fact that this body used to be a person than during dissection last year. I still get sometimes upset at the end of each dissection when I see the destruction we have caused and when we struggle to put the body back together..." (Flack & Nicholson, 2018).

S18: "She [the student's mother] told me much later on, towards the end of the year that she didn't actually eat meat for 6 months because the thought of me doing those kinds of dissections and stuff". (Lamdin *et al.*, 2012).

S13: "Our first experience in the dissection hall was really emotional. I had mixed emotions as I was partially excited to see a real human body's anatomy first hand, but I was also sad when I saw the cadaver for the first time. I was able to man up and swallow my fears but when I saw our cadaver's hands, she had pink cutex and that humanized me more which brought on the waterworks." (Lazarus *et al.*, 2017).

S18: "I did not cry each time I went in there like I did the first time but it was very uncomfortable" (Lamdin *et al.*, 2012).

On the contrary, for some students these impacts are transformed into positive emotions that foster personal growth and effective coping processes. They approach the manipulation of human bodies with compassion and empathy, reflecting on the possible experiences and suffering endured by the donors. In certain cases, students reported developing emotional connections as the dissection sessions progressed, personalizing the donor and expressing gratitude for the donation of their body to support the learning of anatomy.

S1: "One day, I used a scalpel to cut through your upper lip, I suddenly came to a halt as this might hurt you very much. I turned and spoke to my lab tutor, Ms. Tan, "This must be very painful. Do you think my silent mentor is feeling the

pain now?" She paused for a few seconds and replied, "No worry, she must be very comforted since you are fulfilling her will. ..." (Chu *et al.*, 2022).

S15: "When I opened her body, my classmate and I found her intestines had unusual mucus and there were also some lumps. We only then realized that those lumps had spread from the lung cancer which caused her death. I felt very sad. In her last days, she must have suffered a lot of pain. I then probed around the intestines, and remembered the pain she suffered" (Santibañez *et al.*, 2016).

S9: "Although the silent mentors were all totally strangers to me (before the opening ceremony), I could feel that every time I prayed in class the silent mentors could hear my greetings, hear what I was saying to them. I was very politely trying to tell them that I was going to use their bodies to learn. And that I thanked them very much. And I felt emotion toward them" (Lai *et al.*, 2019).

S9: "I am very surprised that so many classmates have developed so much emotions and feelings toward the silent mentors. I do not have such an emotional connection as they have mentioned, but I still regard the silent mentors as my teachers" (Lai *et al.*, 2019).

Both positive and negative emotional reactions influence the teaching and learning of anatomy with donated or deceased human bodies. These reactions arise uniquely in each student, shaped by spiritual beliefs, coping strategies, and by their responses to the stimuli encountered during engagement with these bodies. Therefore, addressing these emotional reactions should be considered an integral component of anatomy curricula in Medicine and Health Sciences.

2.4. Academic Aspects

Practices in macroscopic anatomy laboratories hold great significance for students in Medicine and Health Sciences. Academic factors, such as viewing and manipulating a donated or deceased body, are often intertwined with spirituality. This connection can serve as a source of emotional support and awareness, leading students to reflect on their responsibilities, contemplate the existence of God, or internalize their personal devotion.

S4: "I get to reflect on myself every time I come into the room because I seem to have neglected studying anatomy" (Yoo *et al.*, 2021).

S10: "Her view of medicine and God was a very important point, which it isn't really here. I was marked by that. How much God is in their everyday life and has a lot of say in medicine.... It was interesting to see something so different.... I think we are more encouraged to pursue every

scientific reason for everything.... But that's the way the medicine is taught and practiced there. It's not a bad thing, it's just the way it is there...." (Liau *et al.*, 2018).

S1: "I turned from a junior college student centered on enjoying life to realizing that I will soon be a medical doctor. The expectations from my silent mentor urged me to be more devoted and responsible" (Chu *et al.*, 2022).

Similarly, students attribute different meanings to the donated bodies and to the donors—often referred to as silent mentors—who serve as a source of motivation for commitment and values. These meanings strengthen their academic development by providing a solid humanistic foundation throughout their education and future professional practice. Students also reflect on the existence of the soul, aiming to improve the quality of life of their future patients. They recognize that practitioners are not only responsible for treating disease but also for addressing the soul, understood as an entity that transcends the physical body. In doing so, they express their own interpretations and benevolence.

S1: ... your smiling encouragement and the words "don't be afraid" empowered me to make the first cut on your body. Your smile calmed me down and set my worries free. Your smile worked like a booster shot that lasted from the first incision to the last stitch. (Chu *et al.*, 2022).

S1: Compared to similar-age college peers, I was privileged to have this unique life experience and to face death. You taught me anatomical knowledge and most importantly about life. ... (Chu *et al.*, 2022).

S1: You guided me to be more humanistic in my professional career. A physician should take care of disease and look after the souls of the patients, being considerate and empathic to ensure that patients receive the warmest holistic care (Chu *et al.*, 2022).

DISCUSSION

This review, based on data extracted from the 19 included studies, synthesized evidence showing that anatomy is one of the key basic sciences in the education of Medicine and Health Sciences students. The dissection of donated or deceased human bodies, as well as human specimens, has long served as a foundation for teaching and learning. Its value is also reflected in students' perceptions, as many believe that dissection provides an essential basis for developing clinical skills (Bernal-García *et al.*, 2020). However, practices involving donated or deceased human bodies and the experience of dissection can evoke a range of emotional impacts and mixed feelings, particularly during the initial encounter with a dead body or the concept of death

itself. This may be a distressing experience, generating states of anxiety (Asante *et al.*, 2021). For some students, it can revive memories of personal grief, while for others, it prompts reflection on their own mortality and self-concept, influencing not only the learning of anatomy but also broader aspects such as compassion, humanism, and empathy. In this way, dissection contributes to the formation of professional identity (Abrams *et al.*, 2021). Therefore, it is pertinent to analyze the different factors that can influence the degree of empathy (García & García, 2014).

Similarly, other reactions and reflections have been reported after exposure to human bodies in macroscopic anatomy practices, shaping both conceptual learning and professionalization. These outcomes are linked to whether the experiences are perceived positively or negatively. Positive attitudes toward dissection are often associated with an appropriate representation of the body, life, and death, projecting students into their future profession with a more humane approach to patient care. Dissection also enables them to manage emotions and develop interpersonal skills, both of which are essential for cultivating empathy (Biswas & Bandyopadhyay, 2019). In this context, spirituality emerges as an intuitive and fundamental motivation, often involving belief in something beyond oneself that gives life meaning (Hasanshahi & Mazaheri, 2016). Thus, providing opportunities for students to share their beliefs and perspectives about dissection with peers helps them both influence others' perceptions and confront their own emotions (Abrams *et al.*, 2021).

The reviewed literature reports the implementation of programs that, to some extent, justify the need for body donation for anatomical study, with the aim of shifting the traditional paradigm through a novel approach to interdisciplinary learning. In this approach, the human body is not regarded merely as a specimen but is instead centered on the idea of the donor as the first patient, teacher, and human being (Talarico Jr., 2013). This perspective seeks to restore identity to the donors and place the "patient" at the forefront of medical and health education from the early semesters of the curriculum, where the subject of human macroscopic anatomy is typically introduced.

In this context, students become aware of the importance of human dissection as a privileged learning experience and begin to recognize their roles as future physicians in patient care and family interaction. The protocols of these programs are based on principles that encourage students to regard the donor as their first patient, engage in practice, reflect on it, and, in some cases, interact with the donor's family (Talarico Jr., 2013). Consequently, commemorative ceremonies of gratitude for body donors

are held worldwide, fostering humanistic values such as respect, altruism, and responsibility among students (Jones *et al.*, 2014; Chang *et al.*, 2018).

These ceremonies have been shown to evoke unique and profound experiences, stimulating a wide range of emotions in students (Chang *et al.*, 2018). In these contexts, the term silent mentors is often used to refer to donated bodies employed in dissections throughout anatomy courses (Guo *et al.*, 2020). The concept of “patient” is appropriately connected with that of “silent mentor,” as donated bodies serve as teachers who silently contribute to students’ learning (Chiou *et al.*, 2017). Such perspectives have inspired the development of humanistic literacy programs, in which students write letters to their silent mentors and later deposit them during the coffin ceremony held at the end of the semester. These practices intentionally cultivate humanistic values by encouraging students to view body donors as teachers and altruistic role models, while also promoting meaningful interaction with donors’ families. This dynamic strengthens the humanistic dimension of the anatomy curriculum and motivates students to adopt attitudes of gratitude (Chu *et al.*, 2022).

In these practices, students may also develop an awareness of the dual nature of the human body in relation to morality and ethics. Some report feeling obliged to dissect, even when this conflicts with their ethical, religious, or legal convictions. For certain students, dissection is associated with “violence,” raising concerns about whether donors had given proper consent or were fully aware of the procedures their bodies would undergo. At the same time, the student’s stance on showing respect for the bodies remains highly relevant (Goss *et al.*, 2019).

This perspective contrasts with views on the dissection of deceased, unclaimed bodies, where students often express negative attitudes related to social vulnerability, justice, and autonomy. Such tensions reveal how students’ ethical codes may conflict with the policies of universities and medical schools that authorize these practices, creating discomfort among anatomy course directors, particularly in the United States (Matheson *et al.*, 2025). Consequently, the use of cadaveric material in anatomy education continues to be ethically controversial (Caplan & DeCamp, 2019).

Furthermore, this review identified, in one study, the narrative of a student who questioned, from an ethical standpoint, the “need” to use donated or deceased human bodies for anatomical dissection when numerous technological resources for virtual dissection are currently available (Stephens *et al.*, 2019). In this regard, some researchers argue that learning anatomy through direct

observation or dissection of human bodies “ensures safe medical practice” and have even suggested that “the time has come to reinstate dissection as the central method of teaching macroscopic anatomy” (Ghosh, 2017). However, it is important to note that “not all universities use dissection to teach macroscopic human anatomy” (Riederer, 2016).

At the same time, the literature reflects a growing trend toward the adoption of technological alternatives, with a marked inclination to incorporate various digital tools into anatomy education. Nevertheless, these resources were not the focus of the present review; therefore, comparisons, counterarguments, or detailed discussions of their utility will not be pursued here.

In another context, students perceive donated human bodies in diverse ways, drawing on Christian, non-Christian, or non-religious spiritual themes to frame their reactions. At the same time, some students may struggle with their reflections, requiring guidance to make sense of their thoughts and feelings (Lamdin *et al.*, 2012). Religious affiliation can act as either a barrier or a facilitator in students’ attitudes toward donated or deceased human bodies. This complexity is particularly evident in Orthodox Jewish and Islamic traditions, which hold that the body must not be desecrated or mutilated (Revello, 2009). In contrast, Christianity, Catholicism, Hinduism, and other religious perspectives view the body as a temporary temple that, after death, becomes vacant, with its treatment no longer directly affecting the soul’s destiny. This view allows greater acceptance of body donation. Buddhism, however, maintains that deceased human bodies should not be manipulated during the first three days, to allow for proper reincarnation (Revello, 2009).

It is important to clarify that contemporary positions across these religious traditions generally regard organ and body donation as an extension of love for humanity (Revello, 2009). Thus, religious affiliation is not considered a barrier to pursuing studies in Medicine and Health Sciences. However, such affiliation does influence how students perceive and engage with practices involving donated or deceased human bodies. These practices can, in turn, promote personal and professional development, build resilience, and foster a sense of connection and community among students in these fields (Abrams *et al.*, 2021).

In contrast, this literature review identified few narratives from students without religious or spiritual inclinations. Such perspectives, potentially atheistic or agnostic, were rarely represented and lack sufficient reliability in the interviews analyzed. Consequently, this review does not seek to advance a discussion on that

dimension. Historically, questions regarding the nature of the soul and the afterlife have been central in shaping policies that either supported or opposed human dissection (Brenna, 2021).

Humanistic and ethical issues emerge as a central theme, raising moral questions among students about their perceptions and actions regarding the use of donated or deceased human bodies in dissection. In the laboratory, students often weigh experiences of humanism in the presence of these bodies against situations perceived as dehumanizing, revealing two opposing perspectives. Ethical reflections in the context of anatomy frequently involve categories such as respect, dignity, beneficence, autonomy, and informed consent of the donor. Further considerations include the role of the family, the justification for requiring dissection, and the debate between depersonalizing the body versus recognizing it as a deceased human being (Lazarus *et al.*, 2017; Stephens *et al.*, 2019).

Additionally, some students questioned whether the human tissue required for producing alternative didactic materials—through techniques such as plastination and prosection used in anatomy laboratories—was obtained from donors who had given proper consent (Stephens *et al.*, 2019). From this, further humanistic and ethical issues arise. Although not identified in this review as direct approaches to student interactions with donated or deceased human bodies, such concerns have been highlighted in the scientific literature. For instance, students often express unease when confronted with large traveling exhibitions that display plastinated and dissected human bodies as public spectacles. In these cases, respect and dignity may be compromised, and questions about the origin of the bodies are heightened, fueling an increasingly relevant debate. In this context, Andrade Campo (2009) remarks: “the irony is that if, out of respect for human dignity, dissection and knowledge dissemination through these practices are restricted, human dignity is even more violated, as the cultivation of knowledge that could save more lives in the future is neglected.” This statement illustrates the contrasting positions surrounding the issue.

These ethical debates intersect with spiritual and emotional concerns, which together should inform the curricular approach to such practices in Medicine and Health Sciences. Therefore, anatomy learning should not be reduced to the isolated study of body structures but must also consider broader contexts. The deceased human bodies used in teaching are themselves protagonists in these processes, and they are manipulated by students who bring their own spiritual conceptions of life and death. Thus, the humanities are implicitly embedded in these dynamics, even if often

silenced. This highlights the need to recognize and explicitly address them in the teaching and learning of anatomy with human bodies.

Study Limitations

This scoping review limited searches to the four aforementioned databases for qualitative and mixed-method studies. The included studies employed varied interview formats—such as individual interviews, focus groups, or reflective writing—but often did not explicitly report procedures to mitigate internal bias or the use of checklists to validate methodological quality. Additionally, not all studies provided a sociodemographic characterization of participants, such as religious affiliation or whether they identified as atheist or agnostic. This gap may have constrained the depth of analysis on religious variables within this review.

Consequently, the results cannot be generalized, as curricula for macroscopic human anatomy differ across countries beyond those in which the included studies were conducted. Future work should therefore expand searches in qualitative scientific literature or pursue new research that directly addresses religious and atheistic perspectives on death, donor bodies, and dissection in anatomy. Such efforts would enable a more comprehensive understanding. Accordingly, there is a need for further qualitative investigations as well as complementary research designs that can provide additional insights and enrich the findings identified in this review.

CONCLUSIONS

The spiritual conceptions and perceptions of students in Medicine and other Health Sciences regarding the study of human anatomy with donated or deceased human bodies are shaped by reflections on life and death that inform their understanding of their own humanity and that of others. These reflections influence how students perceive and handle such bodies. Active religious affiliation can act as either a barrier or facilitator in this learning process. While some orthodox religious traditions express reservations about body mutilation and the absence of proper burial, contemporary stances across various faiths increasingly frame body donation as an altruistic act for the benefit of humanity.

Practices in macroscopic anatomy are perceived as essential resources in the formation of students in Medicine and Health Sciences. They foster respect and gratitude toward whole-body donors, as well as spiritual and reflective actions regarding the need to dignify how these bodies—used as tangible study resources—are handled. At the same time,

they help overcome perceptions of dehumanization by acknowledging the humanistic, emotional, and ethical issues implicit in these teaching-learning dynamics. Therefore, greater recognition and curricular attention are needed to properly sensitize students to these practices, in line with the academic and professional value of human anatomy within their programs.

BERNAL-GARCÍA, M. & QUEMBA MESA, M. Concepciones y percepciones espirituales de estudiantes de medicina y otros estudiantes de ciencias de la salud con respecto al aprendizaje de la anatomía humana a partir de cuerpos humanos donados o fallecidos: Una revisión exploratoria. *Int. J. Morphol.*, 44(4):1098-1113, 2026.

RESUMEN: El aprendizaje de la anatomía humana a través de la interacción con cuerpos humanos donados o fallecidos y especímenes anatómicos impacta las creencias de los estudiantes sobre el cuerpo después de la muerte y el significado ritual y espiritual del cuerpo en su totalidad. Proporciona experiencias espirituales, morales, religiosas, éticas, emocionales, físicas y sociales, de las cuales surgen sus impresiones y acciones, lo que los lleva a desarrollar actitudes positivas o negativas. Por lo tanto, el objetivo de esta revisión fue presentar la información disponible sobre las concepciones y percepciones espirituales de los estudiantes de medicina y otras ciencias de la salud al aprender anatomía humana con estos cuerpos. Metodológicamente, se realizó una revisión exploratoria siguiendo las directrices del Instituto Joanna Briggs para garantizar la consistencia y la confiabilidad. Se aplicó una estrategia de búsqueda e identificación en cuatro bases de datos, en inglés y español, utilizando términos MeSH y conectores booleanos. Se incluyeron estudios cualitativos y de métodos mixtos publicados entre 2012 y 2023 si cumplían con los criterios de elegibilidad, mientras que se excluyeron los estudios que no se alineaban con los elementos del PCC de la pregunta de investigación. De 181 registros iniciales, se seleccionaron 19 estudios. La extracción y caracterización de datos se realizó mediante una plantilla del JBI, seguida de un análisis descriptivo que identificó dos temas emergentes representativos: el primero sobre las concepciones espirituales de los estudiantes y el segundo sobre las percepciones espirituales sobre las experiencias de aprendizaje de anatomía con dichos cuerpos. Estos hallazgos resaltan la necesidad de futuras investigaciones cualitativas y otros enfoques para profundizar la comprensión de los resultados de esta revisión.

PALABRAS CLAVE: Percepciones espirituales; Anatomía humana; Educación; Religión; Estudiantes de medicina; Estudiantes de ciencias de la salud; Revisión de alcance.

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